

USAWC STRATEGY RESEARCH PROJECT

**IMPLEMENTATION OF AN ARMY GENERAL
OFFICER KNOWLEDGE MANAGEMENT SYSTEM**

by

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ABSTRACT

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Knowledge is a key enabler which provides organizations and individuals information dominance. This in turn allows the organization and individuals to become relevant and ready through the use of knowledge. However, converting tacit to explicit knowledge, and utilizing this knowledge throughout the spectrum of an organization, has become a challenge for commercial and government entities. General officers within the United States Army possess a plethora of tacit knowledge at the strategic, operational, and tactical level. However, the majority of this knowledge is not captured within a system where present and future general officers can benefit from its existence. In order to rectify this problem the Army must develop and implement a general officer knowledge management system. This system must allow general officers the ability to share, search, and disseminate explicit knowledge via the Internet. Additionally, the architecture associated with this knowledge management system must be a seamless part of day-to-day operations for general officers whose operational tempo is twenty four hours a day, seven days a week. Establishing this system will provide United States Army general officers the ability to transform themselves into true knowledge based individuals that will have a great impact on the Army as an organization.

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IMPLEMENTATION OF AN ARMY GENERAL OFFICER KNOWLEDGE MANAGEMENT SYSTEM

An immense and ever-increasing wealth of knowledge is scattered about the world today; knowledge that would probably suffice to solve all the mighty difficulties of our age, but it is dispersed and unorganized. We need a sort of mental clearing house for the mind: a depot where knowledge and ideas are received, sorted, summarized, digested, clarified and compared.

---H.G. Wells

The current operational tempo of the Army dictates that data and information should be converted to knowledge in a quick and searchable manner. Knowledge is an enabler which allows an individual and organization to become relevant and ready during war and peace. The primary strategic, operational, and sometimes tactical leaders of the United States Army are general officers whom possess a wealth of knowledge that must be captured and disseminated on demand. Currently, the Department of the Army does not have a web based community of practice for general officers to capture and disseminate their knowledge. Strategic, operational, and tactical knowledge at the general officer level leaves the Army at a staggering rate due to retirements, permanent changes of station, and deaths; information is lost that need not be lost. In order to address this problem the Army must fund, develop, and implement a community of practice as part of a knowledge management system for general officers (active and retired). This community of practice can be a web based repository where general officers can provide and receive tactical, operational, and strategic level knowledge. This system will provide general officers an architecture where knowledge can be stored, shared, utilized, analyzed, and discussed. This architecture will provide general officers a one-stop shop to garner strategic historical references, day to day operational and tactical insights, and future thoughts enabling them to lead a relevant and ready force. Additionally, this community of practice must be modular so that sister service general officers, interagency participants, and high ranking civilians within the Department of Defense can easily be added to the system.

In order to implement a successful general officer knowledge management system, a concrete implementation plan must be established. This implementation plan should include a roadmap that designs, develops and implements a general officer knowledge management system. This system should be easy to use and provide the desired outcome—knowledge that can be utilized by general officers which will help them become more effective and efficient leaders of the Army organization¹. The technical requirements associated with the design of a project of this scope are fundamentally easy to implement and readily available on the open market. The management of a system such as this must be clearly understood, planned, and

executed to a very stringent level of detail. Training and access to the system must be simplistic and trouble-free. General officers must be assured that efficiencies gained from using this system will be beneficial. The entire scope of the system and the effectiveness and efficiency gained from the system must be absolutely apparent to the users of the system (Army general officers) for the program to be a success. The developers and users of this community of practice must share a coordinated effort, and should adhere to the overarching Army knowledge management implementation plan. This document will define knowledge, identify critical knowledge, define communities of practice, discuss current uses of knowledge management through the use of communities of practice, determine the importance of capturing strategic knowledge, discuss the managerial and technical aspects, and provide a recommendation for establishing a general officer knowledge management system through the use of a community of practice within the Army.

DATA, INFORMATION, AND KNOWLEDGE

In order to fully understand knowledge management, one must understand the differences between data, information, and knowledge. Data is normally raw, too plentiful, easy to obtain, overwhelming, and may exist in many usable or non-usable forms². A spreadsheet depicting the number of soldiers at Carlisle Barracks is data. Once data has been given meaning in some form or another, information is achieved³. Utilizing the Carlisle Barracks soldier spreadsheet to determine how many soldiers can operate an access gate in a twenty four hour period is information. Once capability and understanding are combined with information, knowledge has been achieved⁴. Utilizing the spreadsheet mentioned above, one can determine that two soldiers must be requisitioned in order to operate the post access gates on a twenty four hour basis for the duration of a month. The knowledge gained from data and information combined allows one to take action and make decisions based upon experiences⁵. Thus, knowledge is actionable information that is available in the right context at the right place and time⁶. The knowledge gained can either be *tacit* or *explicit* knowledge.

Tacit knowledge includes the experiences, values, and personal beliefs gathered through human trial and error⁷. These experiences are stored in the minds of people; they are sometimes difficult to extract and hard to explain⁸. The structure and processes conducted on a daily basis within the interagency is akin to tacit knowledge. Once tacit knowledge has been extracted and formalized into a document or a database with a common language, explicit knowledge is created⁹. The difficulty resides in extracting and acquiring tacit knowledge, and formalizing this information into something that is meaningful and useful to the organization¹⁰.

Designing and managing a system that produces this type of information is difficult, but is also necessary if organizations are to have true knowledge management. A system that allows general officers to easily input their knowledge and extract knowledge of others, while spending minimum of precious time doing so, will benefit the Army.

Within the last decade, knowledge management has been defined and redefined by numerous profit and non-profit organizations¹¹. The Department of the Army defines it as a “strategy to transform the Army into a network-centric, knowledge based force.” Within the modern business world, it is defined as “the tools, techniques, and strategies to retain, analyze, organize, improve, and share business expertise¹².” However, all of the meanings utilized to define knowledge management end with the same result: the ability to gather intellectual capital through the entire spectrum of an organization, and ensure that tacit knowledge is somehow documented and available for others¹³. The benefit of capturing all the tacit knowledge possessed by general officers and providing the capability for others to extract this knowledge as explicit, relevant, and ready information would be a success for the Army knowledge management team for now, and years to come. Such a success might drive the senior Army leadership to push knowledge management faster and deeper throughout the entire Army structure.

IDENTIFICATION OF CRITICAL KNOWLEDGE

Critical knowledge can be defined as any tacit knowledge which is considered important by an organization. In most best-practice organizations, senior management must determine which tacit knowledge is considered critical enough to capture. This critical knowledge should be made available to others within the organization to ensure that effective and efficient operations continue seamlessly.¹⁴ Within the military, it is obvious by rank and position that general officers are the senior managers of the Army organization. By default, these general officers possess the critical tacit knowledge that must be extracted, retained, and morphed into explicit knowledge which can be made available to others in the Army. This strategy would facilitate seamless day to day and future operations. The Battle Command Training Program provides realistic, stressful training for Army Service Component Commands, Corps, Division, and Brigade commanders. They also support Army components participating in joint exercises to assist the Army Chief of Staff in fulfilling his duties to provide trained and ready units to win decisively on the modern battlefield, and to conduct contingency operations worldwide¹⁵. The knowledge gained from these exercises is critical to the Army. Senior Observers (retired four star generals) share their tacit knowledge as mentors during these events in order to help train

and educate active duty general officers. Identifying and capturing this knowledge in a system that can be exploited by other general officers is a necessity.

IMPORTANCE OF CAPTURING CRITICAL KNOWLEDGE

As mentioned earlier, individual experiences, coupled with intangible factors such as values, are tacit knowledge¹⁶. Today, many organizations are struggling with the fact that critical knowledge assets will soon leave the work force¹⁷. This retention crisis is the result of the baby boomer generation reaching retirement eligibility and through layoffs associated with economic factors.¹⁸ “Annual turnover rates of 30 to 40 percent are currently common in many industries, with total industry and government turnover in the United States for February 2002 to January 2003 averaging almost 40 percent”¹⁹. There are 514 active duty, reserve component, and National Guard general officers within the Army²⁰. This number of general officers is mandated by Congress. Every year, Congress promotes an average of 43 colonels to the rank of brigadier general²¹. This means that an average of 43 general officers retire from service at the same time. Additionally, senior strategic leaders (general officers) change jobs frequently throughout their career. The majority of general officers within the Army move from one leadership position to another every two years at the maximum (some positions require that a general officer move on a yearly basis). Capturing critical tacit knowledge from these general officers within these positions becomes more and more important based on the Army at war, rapid technology progress, transformation of the Army, and the volatile and ambiguous environments in which the Army operates. Once general officers change jobs or retire, most of their job specific tacit knowledge leaves with them. Most of the explicit and only some of the true tacit knowledge is captured in after action reviews, formal documentation, electronic messages, and even continuity documents. However, this knowledge usually remains decentralized and generally unavailable for the benefit of the Army. The critical knowledge possessed by general officers within each position of their career must be captured within a system and made easily exportable to others.

Some tacit knowledge by its nature is not easily exportable into explicit knowledge²². This type of knowledge is normally derived from experiences and historical references which reside in the mind of an individual. In this case, the transference of knowledge alludes to the fact that experiential knowledge is also transferred²³. People with years of experience in a position can easily figure out shortcut solutions based on historical knowledge of an event that may not be apparent to individuals without years of experience²⁴. For example, an experienced automation person can normally determine a pattern when a computer fails to connect to a

network, based on experience that this failure is due to a bad network interface card. Similarly, an experienced strategic leader can most likely determine the outcome of a proposed recommendation based on the support generated within the interagency community. These recipes for a quick solution developed through experience assist us in avoiding time consuming avenues that may unfortunately lead us in the wrong direction, thus allowing us to make decisions rapidly and efficiently ²⁵. As one can imagine, organizations that acquire the capability to harness this type of knowledge benefit greatly. Capturing general officer critical (tacit) knowledge generated from Operations Enduring Freedom and Iraqi Freedom, through the Battle Command Training Program, and day-to-day operations, will assist the Army greatly in creating a ready and relevant force. A system that allows general officers to provide mentoring while simultaneously sharing tacit knowledge must be established quickly so that the current operational explicit knowledge can be shared with an Army on the move.

COMMUNITIES OF PRACTICE

As an organization either grows in scope or complexity, learning and sharing of information becomes a valuable resource ²⁶. A community of practice allows a group of people with a common interest to regularly interact on topics in order to increase their knowledge on a given subject ²⁷. The Army acknowledges the purpose of a community of practice as “to create, expand, and exchange knowledge, to develop individual capabilities, and to support the development of team and unit capabilities ²⁸.” In the past and the present, these teams, units, and individuals have met face to face as communities of practice to create and exchange knowledge. This form of meeting was useful to the individuals and teams and allowed them to exchange ideas as frequently as the meetings were scheduled. However, in large organizations such as the Army, the travel expenses and the ability to coordinate a specific date and time for the community to meet can be expensive and time consuming for travelers. General officers rarely have the opportunity to meet in a face to face manner with other general officers due to the operational tempo of today’s Army. Today’s technologies allow these individuals and groups to meet in a digital or virtual manner such as a video teleconference of a digital community of practice and forego the travel expenditures and associated loss of time due to travel. A video teleconference is a good tool to allow communities to meet and exchange ideas; however, there are drawbacks.

Video teleconferencing requires that all parties associated have the required software and hardware tools to make the system work flawlessly. For example, each user would have to ensure a software tool, such as Net Meeting by Microsoft, is installed and that each user would

know the telecommunication bridge or the Internet protocol address required for the connection. Additionally, each user must adjust his or her schedule to the specific date and time of the teleconference in order to participate and share information. On the other hand, participants within a community of practice do not require the scheduling of specific dates and times to participate and exchange ideas. Users can log onto the system at their leisure and query or submit any information that would prove useful to the community. Additionally, the only automation tools normally used to participate in a web based community of practice is an Internet connection, userid, and password. Thus, the most flexible and least cost method to achieve knowledge management within large organizations and individuals that deal in an ambiguous and volatile environment, may very well be through communities of practice that allow individuals to participate at their time of choice.

CURRENT UTILIZATIONS OF KNOWLEDGE MANAGEMENT THROUGH COMMUNITIES OF PRACTICE

At the tactical level of the Army there are two communities of practice where knowledge management is being utilized. Both are web based architectures and are dedicated to platoon leaders and company commanders within the Army regardless of branch. The uniform resource locators of the sites are <http://platoonleader.army.mil> and <http://companyteam.army.mil>. Both sites provide platoon leaders and company commanders the ability to gain information and tacit knowledge through the use of threaded discussion areas coupled with content management from past, present, and future company grade personnel. Both sites are relatively new, but the audiences of each number in the thousands. These sites are accessible through the Internet and are controlled by a userid and password. An individual can easily submit a request to participate within the community as long as one is a member of the Army.

At the tactical and operational level of the Army, there are two forums where knowledge management concepts are being utilized. Both are web based architectures. The first site is dedicated to field grade officers and is located at <http://www.s3-xo.net>. As advertised, this site provides a professional forum where ideas and knowledge can be exchanged on a variety of topics. The last example of an Army knowledge management system is Army Knowledge On-Line. This site is available to all members of the Department of the Army and consists of information and knowledge which can span from the tactical to the strategic level. The uniform resource locator for this site is <https://www.us.army.mil> and includes a variety of features such as electronic mail and community collaboration centers. However, the Army Knowledge On-Line site does not provide a good mechanism for conducting threaded discussion areas.

As part of the Army transformation, the Army Chief Information Officer (G6) is in the process of developing the concept for a Battle Command Knowledge System²⁹. This system will be designed as a networked system of structured professional forums where knowledge can be provided and gained by the communities participating. This system will also include embedded knowledge and collaboration from the Joint, Interagency, Intergovernmental, and Multinational participants. Additionally, this system will be used as part of the Training and Doctrine Command educational institutions to provide knowledge based battle command learning with a reach back capability. However, while some portions of this architectural concept might now be in place, there is no formal Army program yet to produce a robust knowledge management system. It will take many years of system development before it will come to fruition.

Although the management of the resources mentioned above is not coordinated by a single Army entity, (a topic which is much broader than the scope of this document) each agency provides a one-stop shop for personnel at the tactical, operational, and in minor cases strategic level, to gather and share information and knowledge. However, none of these sites, to include the Battle Command Knowledge System, are dedicated to Army general officers whom have an abundance of tacit knowledge that stem from the tactical, operational, and most importantly, the strategic level. This flaw allows strategic level knowledge to “walk out the door” without being successfully captured or exploited to the benefit of the Army and the nation. In order to address this problem, a general officer community of practice must be planned for and implemented within the Army now so the institution can gain the knowledge acquired during this time of war for the nation.

KNOWLEDGE MANAGEMENT IMPLEMENTATION ROAD MAP

In order to achieve a knowledge management system for Army general officers, an implementation plan must be developed and executed. This plan must include (1) determining what and how general officer explicit knowledge is already being documented (2) transferring captured explicit general officer knowledge to a knowledge management system (3) determining what capabilities a general officer knowledge management system must require and (4) determining what organization will host an Army general officer knowledge management system.

DETERMINATION OF GENERAL OFFICER KNOWLEDGE BEING DOCUMENTED

Since 1971, the Army Heritage and Education Center, located at Carlisle Barracks, has been capturing tacit Army general officer knowledge through the use of two programs³⁰. These

programs, Division Commander Lessons Learned and Senior Officer Oral History program, document senior officer knowledge through the use of interviews³¹. From 1971 to present, the Army Heritage and Education Center has captured over three hundred interviews from retired and active duty senior officers³². These interviews are in paper and digital formats but only a portion are accessible by others in a web based or paper format³³. In order to get a copy of one of these interviews, one must go to the Army Heritage and Education Center or submit a request for a specific interview. If these interviews were in a web based digital format, one could read an interview on-line or conduct a knowledge search for specific points of interest within all interviews. In order to accomplish this, all interviews should be transferred to a digital format and placed in a web based repository with an extensive indexing and searching service.

TRANSFERENCE OF CAPTURED EXPLICIT GENERAL OFFICER KNOWLEDGE

There are many software programs on the market today that allow one to turn paper copy data into a digital format. ScanSoft and Adobe are two companies that provide hardware and software solutions that allow users to digitize paper products. Additionally, there are numerous organizations that can be contracted to convert paper copy data to a digital format. Iron Mountain Incorporated and Document Solutions Incorporated are two of the many companies that will convert paper information into a digital format. Currently, the Army Heritage and Education Center converts paper interviews to a digital format using a variety of formats which are web viewable. The Army Heritage and Education Center has sixty six general officer interviews in a digital format, but still possess hundreds of senior officer interviews in a paper format. In order to implement a general officer knowledge management system, efforts must be doubled to convert all interviews into a digital format by utilizing the companies that provide a hardware and software solution, or simply to contract out the effort. In order to accomplish the conversion of interviews, members from other organizations on Carlisle Barracks, or even members of the Senior Service College student population, can be tasked to accomplish this effort. While all interviews are in the process of being converted to a digital format, the United States Army War College Chief Information Management Office in coordination with the Army Heritage and Education Center can simultaneously develop the exact requirements for a general officer management system.

DETERMINE CAPABILITIES OF A GENERAL OFFICER KNOWLEDGE MANAGEMENT SYSTEM

A knowledge management system can consist of many enabling technologies. Some of the enabling technologies are (1) collaborative work tools (2) electronic forums (3) electronic

mail (4) video conferences and (5) searching and indexing functions³⁴. All of these enablers, plus many more, are readily available on the market and can be utilized in a knowledge management system³⁵. In order to determine what enablers must be implemented, a knowledge management team must be formed to design, build, implement and deploy the general officer knowledge management system³⁶. The organizations that should form the primary nucleus of the team are the Department of the Army, Chief Information Office (CIO/G6), the Army Knowledge Management Team, Chief Information Office, Carlisle Barracks, and the Army Heritage and Education Center at Carlisle Barracks. Another organization that can provide input to the team is the General Officer Management Office. Lastly, the Senior Service School at Carlisle Barracks could offer a Term II or Term III elective to automation students so these students possessing the required skills can participate and become an integral part of the knowledge management team. Once this team is formed, they will be able to develop the specific enablers required for the general officer knowledge management system and determine the hosting and personnel requirements for managing the system.

The technology involved (hardware and software) in establishing a strategic knowledge management platform within the Department of the Army is available on the open market. The knowledge management team can either purchase the required hardware commercially or reutilize a platform that is currently tagged as part of the server reduction across the Army. Both methods would work, and the cost associated with either method would be minimal to the Army. A quality server can be purchased for less than twenty thousand dollars commercially from hundreds of vendors. There are many companies that are developing web based communities of practice knowledge center software packages. One such company, Tomoye, already supports the military by providing the front-end software requirements for the company commander and S3/XO communities of practice. Tomoye is also the company that the Department of the Army Chief Information Office (CIO/G6) is utilizing to assist in the planning and development of the Battle Command Knowledge System³⁷. These partnerships align with the second goal "Integrate Knowledge Management Concepts and Best Business Practices to Promote the Knowledge-Based Force" of the Army Knowledge Management Office³⁸. Other organizations that could possibly host the general officer knowledge management system are the Army Heritage and Education Center, General Officer Management Office, and Army Knowledge On-line. Deciding on what organization will host the knowledge management system will directly influence the management aspects of the knowledge management system.

DETERMINATION OF ORGANIZATION TO HOST SYSTEM

The technology aspect of developing a strategic knowledge management site is relatively easy to do. However, managing a general officer knowledge management system is not easy. The knowledge management team must decide upon the right mix of management and automation personnel that will have the overall responsibility of ensuring that the general officer knowledge management site does not just become a repository of information. It must contain strategic, operational, and tactical level explicit knowledge that would benefit the users of the system and the Army as a whole, but it must incorporate key attributes such as speed, security, and scalability.

Any system used by general officers must be able to provide them data on demand or contact with others with the desired experiences and knowledge in a fast and reliable manner. Compression of data technology will allow the system to query and deliver information in an expeditious fashion. Thus, this will provide users with a quick method of submitting, querying, analyzing, and receiving the information they want, when they want it (data on demand). The system must also provide stringent security based on information transferred from and to the system. Utilization of Public Key Encryption technology, similar to what the exchange servers used by general officers provide, and Secure Socket Layer is paramount for security. There is a possibility that this system must be able to operate in the unclassified and classified mode. The managers of this system, in coordination with the users of the system, must decide upon the restrictions required in order to maximize the use of the system without compromising security. Decisions of this magnitude, along with how the managers of the system are going to inform and train the users of the system, must be established.

As stated earlier, general officers are very busy, and new ideas such as a general officer management system must be something that the generals will embrace as an enhancement to their personal knowledge management. In order to accomplish this task, the Department of the Army Chief Information Office (CIO/G6) must ensure that this system operates seamlessly with current uses of exchange mail servers, web servers, and file servers currently utilized by the target audience with non-attribution qualities. A couple forums in which to educate and train the generals on the system can easily be implemented during One-Star and Two-Star Conferences normally held at Fort Leavenworth, Kansas. These events are normally one week in duration and the Department of the Army primary staff officers provide the generals updates within their field of endeavor. The Department of the Army G6 can easily establish a hands-on knowledge management training event that allows the generals to learn and use the system. A focused

training event like this will ensure that the knowledge management system gets the visibility required by all general officers to ensure a successful implementation.

CONCLUSION

A general officer knowledge management system must be implemented within the Army so that strategic, operational, and tactical level explicit knowledge can be captured. The rapid pace of issues involving the senior leaders within the Department of the Army and our ever changing world dictates a requirement to readily capture knowledge from past, present, and future strategic leaders. Accomplishing this task will assist the general officers in ensuring that the Army is ready and relevant. Understanding and implementing a general officer knowledge management system requires the ability to differentiate between data, information, and knowledge. It also requires a determination of how successful knowledge management systems are currently being utilized. One must fully realize the potential costs if there is no implementation of a general officer knowledge management system within the Department of the Army. The knowledge management system must be seamlessly injected through technology enablers (hardware and software) into the everyday life of general officers so the use of the system does not become a mundane event. Additionally, the system must provide flexibility, scalability, speed, and security before the system will be accepted by the general officers. Lastly, the knowledge and training of the system must be in conjunction with other events in which general officers attend. In order to be successful, this system must be a tool that the general officers can utilize in day-to-day operations (garrison or deployed) to assist the Army in transforming into a knowledge based organization.

WORD COUNT= 4656

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³⁴ Tiwana, 127.

³⁵ Ibid.

³⁶ Ibid, 72.

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